

AMENDMENTS TO THE CLAIMS:

The listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) [[A]] In a turbocharged internal combustion engine including a variable volume combustion chamber, inlet valve means controlling flow of air into the combustion chamber, a fuel delivery means for delivering fuel into air to be mixed therewith for combustion, exhaust valve means for controlling flow of combusted gases from the combustion chamber, compressor means for compressing the air prior to admission of the air into the combustion chamber, actuator means for opening and closing the exhaust valve means, and an electronic controller configured to control operation of the actuator means to thereby control opening and closing of the exhaust valve means, the improvement in the turbocharged internal combustion engine comprising:

a variable volume combustion chamber;

inlet valve means controlling flow of air into the combustion chamber;

exhaust valve means for controlling flow of combusted gases from the combustion chamber; and

compressor means for compressing the air prior to admission of the air into the combustion chamber;

the exhaust valve means comprises including at least a first exhaust valve connected to a first exhaust duct and at least a second exhaust valve connected to a second exhaust duct separate and independent from the first exhaust duct;

the compressor means comprises including a first turbocharger and the first exhaust duct [[is]] being connected to the first turbocharger so that exhaust gases passing through the first exhaust duct drive the first turbocharger to rotate;

the second exhaust duct bypasses bypassing the first turbocharger and the combusted gases flowing through the second exhaust duct [[are]] being exhausted without passing through the first turbocharger; and

the electronic controller by controlling operation of the actuator means and thereby the opening and closing of the first and second exhaust valves is operable being operable to control flow of the combusted gases leaving the combustion chamber flow through each of the first and second exhaust ducts;

the compressor means comprises additionally including a second turbocharger receiving charge air for compression by the second turbocharger; wherein

the engine having a first operating condition, wherein the first turbocharger is a high pressure turbocharger and the engine has a first operating condition in which the first high pressure turbocharger being configured to receive receives compressed air at a first pressure from the second turbocharger, which is the second turbocharger being a low pressure turbocharger, and the first turbocharger being configured to compress compresses the compressed air from the second turbocharger to a second higher pressure;

combusted gases leaving the first turbocharger after expansion in a turbine thereof [[are]] being combined with the combusted gases flowing in the second exhaust duct and then the combined flow of combusted gases [[drive]] driving the second turbocharger to rotate;

all exhaust gases passing through the first exhaust duct [[flow]] flowing through the first turbocharger prior to flowing through the second turbocharger in the first operating condition; [[and]]

the proportion of the flow of exhaust gas which flows through the first turbocharger [[is]] being varied [in rate of flow] by variation of opening and closing of the first exhaust valve [means] relative to the second exhaust with changes in engine speed.

2. (Previously Presented) The turbocharged internal combustion engine as claimed in claim 1 wherein combusted gases leaving the second turbocharger flow through a catalytic converter and then to atmosphere.

3. (Previously Presented) The turbocharged internal combustion engine as claimed in claim 1 comprising additionally a first intercooler through which air compressed in the second low pressure turbocharger passes before reaching the first high pressure turbocharger.

4. (Previously Presented) The turbocharged internal combustion engine as claimed in claim 1 comprising an intake air passage downstream of the first and second turbochargers

through which all compressed air is delivered to the combustion chamber via inlet valve means, said air passing either through the high pressure turbocharger or through an intake air bypass passage with bypass valve means controlling flow of the compressed air through the intake air bypass passage, wherein the engine has a second operating condition in which air compressed by the second turbocharger flows through the intake air bypass passage to the intake air passage to the intake valve means bypassing the first turbocharger.

5-14. (Cancelled)

15. (Currently Amended) The turbocharged internal combustion engine as claimed in preceding claim 1 which has the engine having a first combustion mode and a second combustion mode, fuel being mixed with air in the first combustion mode in which fuel is mixed with air to produce a homogeneous mixture which is then ignited by homogenous charge compression ignition and fuel being which has a second combustion mode in which fuel is ignited by compression ignition in the combustion chamber in said second combustion mode.

16. (Previously Presented) The turbocharged internal combustion engine as claimed in claim 15 wherein in part loading operating conditions of the engine the exhaust valve means closes during the upstroke of the piston in order to trap combusted gases in the combustion chamber, the trapped combusted gases forming a mixture with the fuel and air and serving to delay ignition of the fuel and air mixture when the engine is operating in the first combustion mode with homogenous charge compression ignition.

17-25. (Cancelled)

26. (Currently Amended) The turbocharged internal combustion engine as claimed in claim [8] 1, wherein the compressor means comprises additionally an intercooler for cooling the compressor intake air prior to delivery of the air into the combustion chamber.

27-28. (Cancelled)

29. (Currently Amended) The turbocharged internal combustion engine as claimed in claim [8] 1, wherein the [injector] fuel delivery means can inject delivers fuel into the combustion chamber early enough in an upstroke for mixing of the fuel with air to produce a homogeneous mixture which is then ignited by homogenous charge compression ignition and

wherein the [injection' fuel delivery means [[can]] alternatively inject delivers fuel later in the upstroke for compression ignition in the combustion chamber.

30. (Currently Amended) The turbocharged internal combustion engine as claimed in claim 29 wherein in part load operating conditions of the engine ~~the controller operates to close the exhaust valve means~~ is operative to close during the upstroke of the piston in order to trap combusted gases in the combustion chamber, the trapped combusted gases forming a mixture with the fuel and air and serving to delay ignition of the fuel and air mixture when the engine is operating with homogenous charge compression ignition.